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STRUCTURE-ACTIVITY RELATIONSHIPS OF CHLORINATED
ALICYCLIC COMPOUNDS IN CATFISH

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11. SUPPLEMENTARY NOTES

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12a. DISTRIBUTION AVAILABILITY STATEMENT

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13. ABSTRACT (Maximum 200 words)

The goal of the EPSCoR project is to conduct these assays in channel catfish (*Ictalurus punctatus*) preparations and to make the study a comparative toxicology study. During the first year of the project, Mr Carr has optimized the catfish brain membrane preparation for the assay of 35S-TBPS binding. He has expanded his background in neurochemistry to learn receptor binding methods and calculation of receptor saturation experiments for the calculation of Kd and Bmax, and he has extended his experience with radioisotope procedures and calculations. He has studied the competition of 12 of the available organochlorine compounds with 35TPBS binding to catfish brain membranes. The compounds selected for study were chosen based on high, moderate and low potency in the rat brain system. The results thus far indicate a much lower concentration of GABA receptors per unit wet weight in catfish brain compared to rat brain. In general, the organochlorine compounds tested thus far have demonstrated similar relative potency in the catfish brain as in the rat brain. Results were submitted for presentation at the Society of Toxicology annual meeting, Dallas, Texas, March, 1994. Studies of the interference of the compounds with 36Cl- flux will be initiated in the second year.

14. SUBJECT TERMS

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The student supported by the EPSCoR agreement is Mr. Russell Lloyd Carr, social security number [REDACTED] a United States citizen, who is enrolled in a Ph.D. program in the interdisciplinary Animal Physiology program at Mississippi State University. Mr. Carr received a B.S. in biology and chemistry from Delta State University, Cleveland, MS, in 1987, and an M.S. in biological sciences from Mississippi State University in 1990. He has made excellent grades in his doctoral program, making all A's in his coursework.

The parent agreement is a quantitative structure-activity relationship study on the interaction of 33 chlorinated cyclodlene insecticides with the brain γ -aminobutyric acid (GABA) receptor-chloride ionophore complex. This is being accomplished in two phases: a) interaction with the GABA receptor through the compounds' competition for the binding of the specific ligand ^{35}S - γ -butylbicyclopophosphorothionate (TBPS) and b) inhibition of $^{36}\text{Cl}^-$ flux across the chloride ionophore. These two assays are giving an indication of both binding potency and functional potency. These assays are being conducted with the compounds in rat brain membrane and vesicle preparations, respectively.

The goal of the EPSCoR project is to conduct these assays in channel catfish (*Ictalurus punctatus*) preparations and to make the study a comparative toxicology study. During the first year of the project, Mr. Carr has optimized the catfish brain membrane preparation for the assay of ^{35}S -TBPS binding. He has expanded his background in neurochemistry to learn receptor binding methods and calculation of receptor saturation experiments for the calculation of K_d and B_{max} , and he has extended his experience with radioisotope procedures and calculations. He has studied the competition of 12 of the available organochlorine compounds with ^{35}S -TBPS binding to catfish brain membranes. The compounds selected for study were chosen based on high, moderate and low potency in the rat brain system. The results thus far indicate a much lower concentration of GABA receptors per unit wet weight in catfish brain compared to rat brain. In general, the organochlorine compounds tested thus far have demonstrated similar relative potency in the catfish brain as in the rat brain. Results were submitted for presentation at the Society of Toxicology annual meeting, Dallas, Texas, March, 1994. Studies of the interference of the compounds with $^{36}\text{Cl}^-$ flux will be initiated in the second year.

Submitted by:

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